UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,846	06/21/2001	Gwo Shin Swei	D-3995 (3090.1002-000)	6240

7590 09/26/2003

Saint-Gobain Corporation
1 New Bond Street
Box 15138
Worcester, MA 01615-0138

EXAMINER
BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/886,846	SWEI ET AL.	
	Examiner	Art Unit	
	Melanie D. Bissett	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,15 and 16* is/are rejected.

7)☒ Claim(s) *14 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Amendment

1. The rejections based on 35 USC 112 have been withdrawn based on the applicant's arguments. The prior art rejections set forth in the final rejection have been partially maintained and partially withdrawn. Also, new rejections have been provided in the present Office action.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-2 and 4-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Gladstone et al. as evidenced by Borsellino et al.

4. From a prior Office action:

> 7. Gladstone discloses an adhesive system for joining overlapped ends of a coated abrasive article comprising a component having free isocyanate groups, a hydroxyl terminated polyurethane polyester, and a member containing active hydrogen groups (abstract). Thus, the composition comprises an alcohol, more specifically a polyol, by the inclusion of the hydroxyl terminated polyurethane polyester prepolymer. Possible active hydrogen containing members include polyester- and polyether-polyurethane isocyanate blocked prepolymers (col. 6 lines 1-27). It is the examiner's position that both active hydrogen-containing components, because they are prepolymers, would be considered "high molecular weight". The reference notes suitable molecular weights of the hydroxyl terminated polyurethane polyesters to be between 2,000 and 4,000 (col. 5 lines 30-37). Gladstone teaches a method of providing the adhesive as a film on a coated abrasive strip, joining the ends of the strip, and heating the adhesive to cure the components (col. 9 lines 21-45). Both high molecular weight polyurethane prepolymers containing hydroxyl functionality and high molecular weight polyurethane blocked isocyanate prepolymers are present in the adhesive for crosslinking.
>
> 8. Gladstone teaches the urethane isocyanate blocked prepolymers, believing that the prepolymers are disclosed in prior patents. However, Gladstone does not mention the blocking agents used in the prepolymers. The Borsellino reference, referred to by Gladstone, teaches polyurethane isocyanate blocked prepolymers, where the isocyanates are blocked with imine, oxime, or ketoxime

blocking agents (col. 3 lines 28-55). Thus, Gladstone suggests the use of such prepolymers blocked with oxime blocking agents.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gladstone et al.

7. From a prior Office action:

> 11. Gladstone teaches that active hydrogen containing components include isocyanate blocked prepolymers and amine-functional components (col. 6 lines 1-27). However, the reference does not exemplify the use of both compounds together. The shelf life can be optimized by choosing different compounds. It is the examiner's position that it would have been prima facie obvious to choose combinations of preferred materials, including an isocyanate blocked prepolymer and an amine-functional component, by conventional experimentation to optimize shelf life of the adhesive.

8. Claims 1-5, 7-13, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van et al. in view of Goel.

9. Van discloses abrasive articles, including endless belts. The endless belts are made by cutting strips of abrasive material, applying a urethane or other splicing adhesive, joining the ends of the strips, and heating the belt (col. 14 lines 44-65). However, the reference does not specify the type of adhesive to be used as a splicing adhesive. Goel teaches a polyurethane adhesive composition comprising a mixture of a polyisocyanate blocked with a phenolic compound and a polyamine curing agent (abstract). The adhesives are applied to flexible substrates and provide improved flexibility, toxicity, moisture resistance, and strength over other conventional adhesives

(col. 2 lines 20-43). Preferred blocked isocyanates include high molecular weight isocyanate prepolymers having phenolic blocking agents (col. 2 lines 44-58). Also, Goel teaches mixing the polyamine crosslinking agent with a polyol (col. 3 lines 38-48). Examples show the adhesives applied to cloth. Because Goel discloses a conventional polyurethane adhesive for flexible materials including fabric, it is the examiner's position that it would have been prima facie obvious to use the adhesive of Goel's invention in Van's abrasive belts to form a bond from an adhesive having improved flexibility, toxicity, moisture resistance, and strength.

Allowable Subject Matter

10. Claims 14 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

12. The closest prior art, Gladstone et al., teaches an adhesive system for joining overlapped ends of a coated abrasive article comprising a component having free isocyanate groups, a hydroxyl terminated polyurethane polyester, and a member containing active hydrogen groups. Possible active hydrogen containing members include polyester- and polyether-polyurethane isocyanate blocked prepolymers. It is the examiner's position that an abrasive belt formed by Gladstone's invention would have the same material composition in belt form as that of the applicant's claimed belt.

However, the reference does not teach a method of forming an adhesive from essentially blocked isocyanates. Therefore, it is the examiner's position that the applicant's claimed method of using essentially blocked isocyanates with high molecular weight polyurethanes containing hydroxyl functionality would provide a novel and unobvious step over the prior art.

Response to Arguments

13. In response to the applicant's arguments that Gladstone does not teach an isocyanate component consisting essentially of a blocked isocyanate, it is the examiner's position that a coated belt formed from an adhesive with blocked isocyanate would be no different than a coated belt formed using both a blocked and unblocked isocyanate. When using blocked isocyanates, the blocking agent is removed during the cure process to react the isocyanate groups with isocyanate-reactive groups. Thus, Gladstone's cured adhesives formed from blocked isocyanates and free isocyanates would result in a cured polyurethane adhesive product, possibly having residual blocking agents present. Likewise, a cured adhesive from the present claimed invention formed from blocked isocyanates would result in a cured polyurethane adhesive product, possibly having residual blocking agents present. Without structural differences, it is the examiner's position that the coated abrasive products would be the same, and the products of Gladstone's invention anticipate the currently claimed product.

14. Regarding the applicant's arguments that Gladstone does not provide motivation for using a blocked isocyanate system including an amine or teach the advantages of long pot life or belt joint quality, it is first noted that the examiner has provided motivation for including an amine to optimize the shelf life of the material. Note that the "long pot life" and "consistent belt joint quality" limitations are not present in the claim. Also note that the applicant's arguments of improved properties are not drawn directly to the obviousness of including an amine compound.

15. Regarding the applicant's arguments that Gladstone does not provide motivation for combining a blocked isocyanate urethane system with an amine compound, it is noted that Gladstone teaches that any active hydrogen material, including amines and hydroxyl-functional materials, may be used in the invention, also indicating that the equivalent weight of the component may be chosen to optimize pot life (col. 6 lines 1-27). It has been the examiner's position that it would have been prima facie obvious to choose combinations of preferred materials to optimize shelf life of the adhesive. One of ordinary skill in the art would recognize that preferred materials can be combined without undue experimentation. Since the reference indicates that shelf life may be optimized by the choice of active-hydrogen material, it is the examiner's position that the combination of amine and blocked urethane prepolymer would have been an obvious modification to the adhesive. Also, because the reference teaches that active hydrogen compounds, including polyamines, having higher equivalent weights would have longer shelf life, it is the examiner's position that the combination of such a polyamine with a blocked isocyanate would also have prolonged shelf life.

16. In response to the applicant's arguments that one of ordinary skill in the art would not be motivated to mix a free isocyanate with amine groups, it is noted that Gladstone teaches doing just that. Active-hydrogen materials, including amines, are included in the compositions based on their equivalent weights. Thus, one skilled in the art reading Gladstone would envision that amines and free isocyanates could be mixed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb

James J. Seidleck
Supervisory Patent Examiner
Technology Center 1750